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Commentary

Overview of the Final Panel Session

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To encourage research in the field of environmental mutagenesis and to discuss specific regional problems, various conferences have recently been organized. The first one was held in Costa Rica in 1988, and its follow-up was held in Caxambu, Brazil, in May 1991. The Southeast Asian workshop was held in 1989 in Thailand, and a meeting was held in Guadalajara, Mexico, in 1989. It was, in fact, in Guadalajara and at the preceding meeting on genetic biomonitoring in Galveston, Texas, that the first plans for the Cairo meeting were conceived.

The following papers represent the collective wisdom of the participants at the final panel session of the Cairo meeting. After stating the needs for coordination of scientific activities, emphasis is given to prioritizing hazards. Valuable recommendations are listed under Chemical Prioritizing and Human Surveillance Studies. I would, however, like to emphasize the relevance of genetic biomonitoring studies. They provide us with the first indication of mutagenic effectiveness of a particular exposure in human somatic cells. What should be done next touches on issues such as ethical needs of follow-up studies. If we would follow-up cancer incidence or other diseases in individuals with chromosome aberrations, cytogenetic biomonitoring studies may gain in predictive value. The large collaborative Nordic study that keeps track of health and chromosome records of the responding individuals may serve as an example in this respect.

Another question is whether individuals with chromosomal aberrations represent a random variation or perhaps reflect a response of susceptible individuals. Here, I mean individuals with increased sensitivity as a consequence of a defective repair system or a variant metabolic activation system. With noninvasive methods, it should now be possible to obtain such information.

The chemicals and populations selected for genetic biomonitoring studies should, I believe, receive priority in studies on the assessment of genetic risks. A directed effort to assess and quantify genetic risks resulting from human exposure to mutagenic chemicals is urgently called for; otherwise we may well lose our credibility. Extrapolation to what can possibly be expected in germ cells of the exposed individuals can be done by using dosimetry via measuring adducts and using a parallelogram-like approach. The underlying idea is that an estimate of the genetic damage in human germ cells can be obtained by measuring a common end point in humans and mice, such as genetic damage in lymphocytes and a genetic end point in germ cells of mice, the desired target tissue which is inaccessible in man.

Genotoxic chemicals with a vast human exposure and clear effects in human somatic cells should receive priority in future studies of genetic risk assessment. A sharpening of the focus and an agonizing reappraisal of the most relevant priorities in our field of science is urgently needed. In summary, the organizers of the 1992 Cairo conference should be commended on the fact that the recommendations and the perspective on the conclusions that emerged from the final session of the meeting make an important contribution. The papers that follow should be compulsory reading for all those interested in the progress of our field.

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